QC ABSTRACT

NAME OF WORK: Improvements to Roads and Drains at Vyshnavi Layout in Ward No. 11(Kuvempunagara), Vidyaranyapura Sub Division.

SL NO	Item Of Work	Name of Test	Frequency of Test/Quantity	Executed Quantity	Number of Tests Required	Number of Tests Conducted
		Materials				
1	Cement	Fineness by dry sieving	One Test		1	1
		Finess by Air permeablity method	One Test		1	1
		Density	One Test		1	1
		Standard Consistency	One Test		1	1
		Initial Setting time	One Test		1	1
		Final Setting time	One Test		1	1
		Soundness (Le Chatelier's Method)	One Test		1	1
		Compressive Strength	One Test		1	1
2	Coarse aggregate(40 mm down size)	SIEVE ANALYSIS	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		Specific Gravity	One Test		1	1
		Bulk Density(Loose)	One Test		1	1
		Bulk Density(Compacted)	One Test		1	1
		Water Absorption	One Test		1	1
3	Fine aggregate	SIEVE ANALYSIS	One Test		1	1
		Water Absorption	One Test		1	1
		Specific Gravity	One Test		1	1
		Material finer than 75 micron	One Test		1	1
4	Precast (250mm)	Core Compressive Strength	One Test		1	1
		Corrected Cylinder Compressive Strength	One Test		1	1
		Equivalent Cube Compressive Strength	One Test		1	1
5	WMM	Sieve Analysis	One Test		1	1
		Impact Value	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
6	BM	SIEVE ANALYSIS	One Test		1	1
		STRIPPING VALUE	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		IMPACT VALUE	One Test		1	1
		Specific gravity	One Test		1	1
		Water Absorption	One Test		1	1
		Marshal Stability	One Test		1	1
		Marshal flow	One Test		1	1
		Percent air Voids	One Test		1	1
		Percent Voids in mineral Aggregate	One Test		1	1
		Percent Voids filled with Bitumen	One Test		1	1
		Density	One Test		1	1
		Gradation	One Test		1	1

Assistant Executive Engineer
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7	BC	SIEVE ANALYSIS	One Test		1	1
		STRIPPING VALUE	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		IMPACT VALUE	One Test		1	1
		Specific gravity	One Test		1	1
		Water Absorption	One Test		1	1
		Marshal Stability	One Test		1	1
		Marshal flow	One Test		1	1
		Percent air Voids	One Test		1	1
		Percent Voids in mineral	One Test		1	1
		Percent Voids filled with Bitumen	One Test		1	1
		Density	One Test		1	1
		Gradation	One Test		1	1
8	BITUMEN	Ductility	One Test		1	1
		Softening Point	One Test		1	1
		Penetration	One Test		1	1
		Flash Point	One Test		1	1
		Fire Point	One Test		1	1
9	TACK COAT	Rate of spread	One Test		1	1
10	Mortar Sand	Water Absorption	One Test		1	1
		Specific Gravity	One Test		1	1
		Material finer than 75 micron	One Test		1	1
		Compacted Bulk Density	One Test		1	1
		Loose Bulk Density	One Test		1	1
		SIEVE ANALYSIS	One Test		1	1

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TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2022-06-17-28** **Date: 28-04-2022**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Vyshnavi Layout in Ward No. 11(Kuvempunagara), Vidyaranyapura Sub Division.
Agency	:	Sri.K Shankar Reddy, No:18, K- No 370,414,413,188, Bhuvaneshwarinagara, Bangalore-560024
Customer's Reference	:	BBMP/EE/BTP/WO/19/2022-23
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	25-04-2022
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 (Part 1,2 3,4,5, 6,11):1988 IS 4031 Part 1 (RA 2021) DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4 IS 4031 Part 2, (RA 2018) Determination of Fineness by Blaine Air Permeability Method, Clause 5 IS 4031 Part 3, (RA 2019) Determination of Soundness, Clause 5, Clause 6 IS 4031 Part 4, (RA 2019) Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 5, (RA 2019) Determination of Initial & Final Setting Time, Clause 5 IS 4031 Part 11, (RA 2019)DETERMINATION OF DENSITY , Clause 6
Date of test	:	26-04-2022
Environmental Conditions during test	:	Temperature: 26°C Humidity: 72%

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	Fineness by dry sieving (%)	1.95	–
2	Finess by Air permeablity method (m^2/kg,Min)	285.3	225m^2/kg, Min
3	Density (gm/cc)	3.14	–
4	Standard Consistency (%)	29.5%	Not specified
5	Initial Setting time	150 minutes	Not less than 30 minutes
6	Final Setting time	245 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method)	1.5mm	Not more than 10 mm

* The results obtained are satisfactory as per standard requirements.

Note:

The results pertain to the samples received and tested.

All information furnished by Customer/Representative

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Quality Manager

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TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2022-06-17-28** **Date: 24-05-2022**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Vyshnavi Layout in Ward No. 11(Kuvempunagara), Vidyaranyapura Sub Division.
Agency	:	Sri.K Shankar Reddy, No:18, K- No 370,414,413,188, Bhuvaneshwarinagara, Bangalore-560024
Customer's Reference	:	BBMP/EE/BTP/WO/19/2022-23
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	25-04-2022
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 Part 4, (RA 2019) Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 6, (RA 2019) Determination of Compressive Strength, Clause 6
Date of test	:	26-04-2022
Environmental Conditions during test	:	Temperature: 26°C Humidity: 72%

Compressive Strength

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	3 Days	28.5N/mm^2	Not less than 27 N/mm^2
2	7 Days	39.0N/mm^2	Not less than 37 N/mm^2
3	28 Days	58.5N/mm^2	Not less than 53 N/mm^2

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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2022-06-17-28** **Date: 28-04-2022**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Vyshnavi Layout in Ward No. 11(Kuvempunagara), Vidyaranyapura Sub Division.
Agency	:	Sri.K Shankar Reddy, No:18, K- No 370,414,413,188, Bhuvaneshwarinagara, Bangalore-560024
Customer's Reference	:	BBMP/EE/BTP/WO/19/2022-23
Source of Sample	:	Sample supplied by Agency
Sample condition	:	Satisfactory
Date of Receipt	:	25-04-2022
Sample Type	:	40mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2021 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	25-04-2022

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:

Total weight taken : 15000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	80 mm	0	0	0.0	100	100
2	40 mm	254	254	1.7	98.3	90-100
3	20 mm	5422	5676	37.8	62.2	30-70
4	10 mm	4132	9808	65.4	34.6	10-35
5	4.75 mm	4854	14662	97.7	2.3	0-5
6	Pan	338	15000	100.0	0	---

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2022-06-17-28** **Date: 28-04-2022**

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	12.4	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	11.8	
3	Specific Gravity	2.68	_
4	Bulk Density(Loose) (Kg/l)	1.48	_
5	Bulk Density(Compacted) (Kg/l)	1.52	_
6	Water Absorption(%)	0.22	_

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TEST REPORT OF FINE AGGREGATE

Lab ID : **CP-2022-06-17-28** **Date: 27-04-2022**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads and Drains at Vyshnavi Layout in Ward No. 11(Kuvempunagara), Vidyaranyapura Sub Division.

Agency : Sri.K Shankar Reddy, No:18, K- No 370,414,413,188, Bhuvaneshwarinagara, Bangalore-560024

Customer's Reference : BBMP/EE/BTP/WO/19/2022-23

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 25-04-2022

Sample Type : Fine Aggregate

Reference to BIS codes : IS 383 : 2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1, 3) RA2021
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption

Date of test : 25-04-2022

Total weight taken : 1000 grams

Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS 383:2016			
						Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
1	10 mm	0	0	0.0	100.0	100	100	100	100
2	4.75 mm	27	27	2.7	97.3	90-100	90-100	90-100	95-100
3	2.36 mm	55	82	8.2	91.8	60-95	75-100	85-100	95-100
4	1.18 mm	239	321	32.1	67.9	30-70	55-90	75-100	90-100
5	600 micron	205	526	52.6	47.4	15-34	35-59	60-79	80-100
6	300 micron	203	729	72.9	27.1	5-20	8-30	12-40	15-50
7	150 micron	191	920	92.0	8.0	0-10	0-10	0-10	0-15
8	Pan	80	1000	100.0	0.0	---	---	---	---

Result :The tested Sample Conforms to Grading Zone II

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TEST REPORT OF FINE AGGREGATE

Lab ID : **CP-2022-06-17-28** **Date: 27-04-2022**

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS 383:2016
1	Water Absorption(%)	1.5	_
2	Specific Gravity	2.59	_
3	Material finer than 75 micron(%)	6.9	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

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TEST REPORT OF PRECAST COVER SLAB

Lab ID : **CP-2022-06-17-28** **Date: 04-05-2022**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads and Drains at Vyshnavi Layout in Ward No. 11(Kuvempunagara), Vidyaranyapura Sub Division.

Agency : Sri.K Shankar Reddy, No:18, K- No 370,414,413,188, Bhuvaneshwarinagara, Bangalore-560024

Customer's Reference : BBMP/EE/BTP/WO/19/2022-23

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 30-04-2022

Sample Type /Size : Precast Cover Slab (250 mm)

Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete

Date of test : 30/04/2022

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	(kg)	(Sq.mm)	(KN)	(N/mm^2)	(N/mm^2)	(N/mm^2)
1	Cover Slab-1	200.69	250.63	3.125	31627	690.5	21.8	20.3	25.4
2	Cover Slab-2	200.72	250.36	3.256	31637	720.5	22.8	21.2	26.5
3	Cover Slab-3	200.85	250.96	3.365	31678	730.5	23.1	21.4	26.8

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TEST REPORT FOR SAND MASONRY MORTARS

Lab ID	:	**CP-2022-06-17-28** **Date: 04-05-2022**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Vyshnavi Layout in Ward No. 11(Kuvempunagara), Vidyaranyapura Sub Division.
Agency	:	Sri.K Shankar Reddy, No:18, K- No 370,414,413,188, Bhuvaneshwarinagara, Bangalore-560024
Customer's Reference	:	BBMP/EE/BTP/WO/19/2022-23
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	30-04-2022
Sample Type	:	Fine Aggregate, M.Sand for Mortar
Reference to BIS codes	:	IS 383 : 2016 (Specification for Coarse and fine Aggregates) IS: 2116-1980 (RA-2007) (Specification for Sand for Masonry Mortars) IS: 2386 :1963(Part - 1, 3) RA2021 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption
Date of test	:	30-04-2022
Total weight taken	:	1000 grams

Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS: 2116-1980 (RA-2007)
1	4.75 mm	0	0	0	100	100
2	2.36 mm	85	85	8.5	91.5	90-100
3	1.18 mm	200	285	28.5	71.5	70-100
4	600 micron	146	431	43.1	56.9	40-100
5	300 micron	116.5	547.5	54.8	45.3	5-70
6	150 micron	412.5	960	96.0	4.0	0-15
7	Pan	40	1000	100.0	0.0	0

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TEST REPORT FOR SAND MASONRY MORTARS

Lab ID : **CP-2022-06-17-28** **Date: 04-05-2022**

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS 383:2016
1	Water Absorption(%)	3.18	–
2	Specific Gravity	2.51	–
3	Material finer than 75 micron(%)	12.2	Crushed Fine aggregate Max 15%
4	Compacted Bulk Density (Kg/litre)	1.90	–
5	Loose Bulk Density (Kg/litre)	1.73	–

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TEST RESULTS OF GRADATION FOR WMM

Lab ID	:	**CP-RW-2022-06-17-28** **Date: 09-05-2022**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Vyshnavi Layout in Ward No. 11(Kuvempunagara), Vidyaranyapura Sub Division.
Agency	:	Sri.K Shankar Reddy, No:18, K- No 370,414,413,188, Bhuvaneshwarinagara, Bangalore-560024
Customer Reference	:	BBMP/EE/BTP/WO/19/2022-23
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	07-05-2022
Type of Mix	:	WMM (Wet Mix Macadam)
Date of Test	:	07-05-2022
Oven Dry Weight	:	11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	325	325	3.0	97.0	95-100
22.4	2156	2481	22.6	77.4	60-80
11.2	2069	4550	41.4	58.6	40-60
4.75	2169	6719	61.1	38.9	25-40
2.36	1546	8265	75.1	24.9	15-30
0.6	595	8860	80.5	19.5	8-22
0.075	1732	10592	96.3	3.7	0-5

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TEST REPORT OF AGGEGRATE IMPACT VALUE
IS: 2386 Part IV

Lab ID	:	**CP-RW-2022-06-17-28** **Date: 09-05-2022**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Vyshnavi Layout in Ward No. 11(Kuvempunagara), Vidyaranyapura Sub Division.
Agency	:	Sri.K Shankar Reddy, No:18, K- No 370,414,413,188, Bhuvaneshwarinagara, Bangalore-560024
Customer Reference	:	BBMP/EE/BTP/WO/19/2022-23
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	07-05-2022
Type of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)
Date of Test	:	07-05-2022

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	300.2	300.2
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	74.5	73.5
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	225.2	226.4
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.5	0.3
5	Aggregate impact value	(B/A)*100	24.8	24.5
6	Aggregate impact value (Mean of two tests)	Pecentage	24.7	

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DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	**CP-RW-2022-06-17-28**	**Date: 09-05-2022**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.	
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.	
Project Name	:	Improvements to Roads and Drains at Vyshnavi Layout in Ward No. 11(Kuvempunagara), Vidyaranyapura Sub Division.	
Agency	:	Sri.K Shankar Reddy, No:18, K- No 370,414,413,188, Bhuvaneshwarinagara, Bangalore-560024	
Customer Reference	:	BBMP/EE/BTP/WO/19/2022-23	
Source of Sample	:	Sample supplied by Agency	
Sample Condition	:	Satisfactory	
Date of Receipt	:	07-05-2022	
Type of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)	
Date of Test	:	07-05-2022	

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	12.6%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	12.8%	
Combined Flakiness and Elongation Index for WMM	25.4%	

* The results obtained are satisfactory as per standard requirements.

Note:-

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TEST RESULTS OF GRADATION FOR BM
(IS 2386:(Part 1) 1963 (RA2011)

Lab ID	:	**CP-RW-2022-06-17-28** **Date: 16-05-2022**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Vyshnavi Layout in Ward No. 11(Kuvempunagara), Vidyaranyapura Sub Division.
Agency	:	Sri.K Shankar Reddy, No:18, K- No 370,414,413,188, Bhuvaneshwarinagara, Bangalore-560024
Customer Reference	:	BBMP/EE/BTP/WO/19/2022-23
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	14-05-2022
Type of Mix	:	BM-Plant (Bituminous Macadam)
Date of Test	:	14-05-2022
Weight of Sample(gm)	:	5000

IS Sieve Size(mm)	Weight Retained(gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-7(grading -2)
26.5	0	0	0	100	100
19	159	159	3.2	96.8	90-100
13.2	465	624	12.5	87.5	56-88
4.75	2689	3313	66.3	33.7	16-36
2.36	856	4169	83.4	16.6	4-19
0.3	372	4541	90.8	9.2	2-10
0.075	219	4760	95.2	4.8	0-8
PAN	240	5000	100.0	0.0	0

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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS MACADAM

Lab ID	:	**CP-RW-2022-06-17-28** **Date: 17-05-2022**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Vyshnavi Layout in Ward No. 11(Kuvempunagara), Vidyaranyapura Sub Division.
Agency	:	Sri.K Shankar Reddy, No:18, K- No 370,414,413,188, Bhuvaneshwarinagara, Bangalore-560024
Customer Reference	:	BBMP/EE/BTP/WO/19/2022-23
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	14-05-2022
Type of Mix	:	BM (Bituminous Macadam)
Date of Test	:	14-05-2022

Table 500-6 : Physical Requirements fo Coarse Aggregate for Bituminous Macadam

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	13.8	Combined Flakiness & Elongation Index for BM is Maximum 35%	IS:2386 Part I
	Elongation Index	7.8		
Strength	Aggregate Impact Value	25.6	Maximum 30%	IS:2386 Part IV
Specific gravity	Specific gravity	2.64	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.15	Maximum 2%	IS:2386 Part III

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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID	:	**CP-RW-2022-06-17-28**	**Date: 17-05-2022**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.	
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.	
Project Name	:	Improvements to Roads and Drains at Vyshnavi Layout in Ward No. 11(Kuvempunagara), Vidyaranyapura Sub Division.	
Agency	:	Sri.K Shankar Reddy, No:18, K- No 370,414,413,188, Bhuvaneshwarinagara, Bangalore-560024	
Customer Reference	:	BBMP/EE/BTP/WO/19/2022-23	
Source of Sample	:	Sample supplied by Agency	
Sample Condition	:	Satisfactory	
Date of Receipt	:	14-05-2022	
Type of Mix	:	BM(Bitumnous Macadam)	
Date of Test	:	14-05-2022	
Type of Binder	:	60/70	
% of Binder Used	:	5.0%	
Weight of Aggregate	:	200.0 gm	
Weight of Binder	:	10.0 gm	
Temperature of water bath	:	40°C	

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.3	1.7	98.4	Minimum Retained Coating 95%
2	98.6	1.4		
3	98.4	1.6		

* The results obtained are satisfactory as per standard requirements.

Note:-
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TESTS RESULTS ON STABILITY OF MIX

Lab ID	:	**CP-RW-2022-06-17-28** **Date: 17-05-2022**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Vyshnavi Layout in Ward No. 11(Kuvempunagara), Vidyaranyapura Sub Division.
Agency	:	Sri.K Shankar Reddy, No:18, K- No 370,414,413,188, Bhuvaneshwarinagara, Bangalore-560024
Customer Reference	:	BBMP/EE/BTP/WO/19/2022-23
Source of Sample	:	Hot Mix Plant, Bangalore
Sample Condition	:	Satisfactory
Date of Receipt	:	14-05-2022
Type of Mix	:	BM (Bituminous Mecadam)
Date of Test	:	14-05-2022

The results of the tests conducted on the Bituminous Macadam mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.25	11.95	9KN(Min)
2	Marshal flow at 60°C, mm	3.65	3.79	2-4
3	Percent air Voids	4.65	4.26	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.63	14.86	13-15
5	Percent Voids filled with Bitumen(VFB %)	67.95	72.58	65-75
6	Density, g/cc	2.41	2.42	–

* The results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BM
(IS 2386:(Part 1) 1963 (RA2011)

Lab ID	:	**CP-RW-2022-06-17-28**	**Date: 25-05-2022**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.	
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.	
Project Name	:	Improvements to Roads and Drains at Vyshnavi Layout in Ward No. 11(Kuvempunagara), Vidyaranyapura Sub Division.	
Agency	:	Sri.K Shankar Reddy, No:18, K- No 370,414,413,188, Bhuvaneshwarinagara, Bangalore-560024	
Customer Reference	:	BBMP/EE/BTP/WO/19/2022-23	
Source of Sample	:	Sample supplied by Agency	
Date of Receipt	:	24-05-2022	
Type of Mix	:	BM (Bituminous Macadam)	
Date of Test	:	24-05-2022	

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	500	500
2	Weight of the sample After extraction	B	483	481
3	Bitumen percentage	$\frac{A-B}{A} \times 100$	3.4	3.80
4	Average percentage	%	3.60	

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Lab ID : **CP-RW-2022-06-17-28** **Date: 25-05-2022**

AFTER EXTRACTION(Trail-1)

Weight of Sample : 483 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-7(grading -2)
26.5	0	0	0.0	100.0	100
19	42	42	8.7	91.3	90-100
13.2	135	177	36.6	63.4	56-88
4.75	185	362	74.9	25.1	16-36
2.36	36	398	82.4	17.6	4-19
0.3	45	443	91.7	8.3	2-10
0.075	29	472	97.7	2.3	0-8

AFTER EXTRACTION(Trail-2)

Weight of Sample : 481 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-7(grading -2)
26.5	0	0	0.0	100.0	100
19	35	35	7.3	92.7	90-100
13.2	135	170	35.3	64.7	56-88
4.75	198	368	76.5	23.5	16-36
2.36	36	404	84.0	16.0	4-19
0.3	42	446	92.7	7.3	2-10
0.075	25	471	97.9	2.1	0-8

* The results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	**CP-RW-2022-06-17-28**	**Date: 21-05-2022**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.	
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.	
Project Name	:	Improvements to Roads and Drains at Vyshnavi Layout in Ward No. 11(Kuvempunagara), Vidyaranyapura Sub Division.	
Agency	:	Sri.K Shankar Reddy, No:18, K- No 370,414,413,188, Bhuvaneshwarinagara, Bangalore-560024	
Customer Reference	:	BBMP/EE/BTP/WO/19/2022-23	
Source of Sample	:	Sample supplied by Agency	
Sample Condition	:	Satisfactory	
Date of Receipt	:	19-05-2022	
Type of Mix	:	BC-Plant (Bituminous Concrete)	
Date of Test	:	19-05-2022	
Oven Dry Weight	:	5000 Grams	

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	96	96	1.9	98.1	90-100
9.5	805	901	18.0	82.0	70-88
4.75	965	1866	37.3	62.7	53-71
2.36	489	2355	47.1	52.9	42-58
1.18	369	2724	54.5	45.5	34-48
0.6	605	3329	66.6	33.4	26-38
0.3	459	3788	75.8	24.2	18-28
0.15	359	4147	82.9	17.1	12-20
0.075	369	4516	90.3	9.7	4-10
PAN	485	5001	100	0.0	0

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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID	:	**CP-RW-2022-06-17-28** **Date: 22-05-2022**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Vyshnavi Layout in Ward No. 11(Kuvempunagara), Vidyaranyapura Sub Division.
Agency	:	Sri.K Shankar Reddy, No:18, K- No 370,414,413,188, Bhuvaneshwarinagara, Bangalore-560024
Customer Reference	:	BBMP/EE/BTP/WO/19/2022-23
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	19-05-2022
Type of Mix	:	BC(Bitumenous Concrete)
Date of Test	:	19-05-2022

Type of Binder	:	60/70
% of Binder Used	:	5.0%
Weight of Aggregate	:	200.0 gm
Weight of Binder	:	10.0 gm
Temperature of water bath	:	40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.6	1.4	98.4	Minimum Retained Coating 95%
2	98.4	1.6		
3	98.3	1.7		

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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

Lab ID	:	**CP-RW-2022-06-17-28** **Date: 22-05-2022**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Vyshnavi Layout in Ward No. 11(Kuvempunagara), Vidyaranyapura Sub Division.
Agency	:	Sri.K Shankar Reddy, No:18, K- No 370,414,413,188, Bhuvaneshwarinagara, Bangalore-560024
Customer Reference	:	BBMP/EE/BTP/WO/19/2022-23
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	19-05-2022
Type of Mix	:	BC (Bituminous Concrete)
Date of Test	:	19-05-2022

Table 500-16 : Physical Requirements fo Coarse Aggregate for Bituminous Concrete

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	12.6	Combined Flakiness & Elongation Index for BC is Maximum 35%	IS:2386 Part I
	Elongation Index	11.6		
Strength	Aggregate Impact Value	22.5	Maximum 24%	IS:2386 Part IV
Specific gravity	Specific gravity	2.65	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.23	Maximum 2%	IS:2386 Part III

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TEST REPORT ON BITUMEN

Lab ID	:	**CP-RW-2022-06-17-28** **Date: 12-05-2022**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Vyshnavi Layout in Ward No. 11(Kuvempunagara), Vidyaranyapura Sub Division.
Agency	:	Sri.K Shankar Reddy, No:18, K- No 370,414,413,188, Bhuvaneshwarinagara, Bangalore-560024
Customer's Reference	:	BBMP/EE/BTP/WO/19/2022-23
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	10-05-2022
Sample Type	:	Bitumen
Reference to BIS codes	:	IS: 1201-2021, IS: 1202-1220(1978) (Reaffirmed-2019)
Date of Test	:	10-05-2022

Test Results

Sl.no	Name of Test	Result	Requirements as per IS:73-2013
1	Penetration at 25°C , in 1/10th mm	**66**	60 to 70
2	Softening Point, °C	**51.6**	Min. 40°C
3	Ductility, cm	**96**	Min. 75cm
4	Flash point, °C	**235**	Min. 220°C
	Fire point, °C	**284**	

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Quality Manager

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DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : **CP-RW-2022-06-17-28** **Date: 29-05-2022**
Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address : Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name : Improvements to Roads and Drains at Vyshnavi Layout in Ward No. 11(Kuvempunagara), Vidyaranyapura Sub Division.
Agency : Sri.K Shankar Reddy, No:18, K- No 370,414,413,188, Bhuvaneshwarinagara, Bangalore-560024
Customer Reference : BBMP/EE/BTP/WO/19/2022-23
Sample Condition : Satisfactory
Date of Receipt : 28-05-2022
Type of Mix : Tack coat
Date of Test : 28-05-2022

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.804	0.773
5	Weight of tack Coat (d=c-b)	Kg	0.024	0.025
6	Rate of spread of tack coat	Kg/sq.m	0.267	0.278
7	Average	Kg/sq.m	0.272	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : **CP-RW-2022-06-17-28** **Date: 29-05-2022**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads and Drains at Vyshnavi Layout in Ward No. 11(Kuvempunagara), Vidyaranyapura Sub Division.

Agency : Sri.K Shankar Reddy, No:18, K- No 370,414,413,188, Bhuvaneshwarinagara, Bangalore-560024

Customer Reference : BBMP/EE/BTP/WO/19/2022-23

Source of Sample : Sample supplied by Agency

Date of Receipt : 28-05-2022

Type of Mix : BC (Bituminous Concrete)

Date of Test : 28-05-2022

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	500	500
2	Weight of the sample After extraction	B	469	468
3	Bitumen percentage	$\frac{A-B}{A} \times 100$	6.20	6.40
4	Average percentage	%	6.3	

FOR CIVIL Pro.

CIVIL Pro Sig ..... Date ..... BANGALORE

R KARTHIK RECHAN
Authorized Signatory
Quality Manager

ASSISTANT EXECUTIVE ENGINEER
Vidyaranyapura Sub-Division
Bruhath Bengaluru Mahanagara Palike

Lab ID : **CP-RW-2022-06-17-28** **Date: 29-05-2022**

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 469

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	6	6	1.3	98.7	90-100
9.5	75	81	17.3	82.7	70-88
4.75	116	197	42.0	58.0	53-71
2.36	65	262	55.9	44.1	42-58
1.18	32	294	62.7	37.3	34-48
0.6	15	309	65.9	34.1	26-38
0.3	35	344	73.3	26.7	18-28
0.15	40	384	81.9	18.1	12-20
0.075	45	429	91.5	8.5	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 468

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	8	8	1.7	98.3	90-100
9.5	65	73	15.6	84.4	70-88
4.75	116	189	40.4	59.6	53-71
2.36	65	254	54.3	45.7	42-58
1.18	32	286	61.1	38.9	34-48
0.6	16	302	64.5	35.5	26-38
0.3	52	354	75.6	24.4	18-28
0.15	49	403	86.1	13.9	12-20
0.075	39	442	94.4	5.6	4-10

* The results obtained are satisfactory as per standard requirements.

Note:-

The results pertain to the samples received and tested.
All information Furnished by Customer/ Representative
Any correction in the report will make this report invalid.
This report without prior written approval should not be reproduced or published in full or part.
Samples will be disposed after 30 days from the date of issue of test certificate

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CIVIL Pro Sig..... Date..... BANGALORE

R KARTHIK RECHAN
Authorized Signatory
Quality Manager

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Bruhath Bengaluru Mahanagara Palike

End of Report

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TESTS RESULTS ON STABILITY OF MIX

Lab ID : **CP-RW-2022-06-17-28** **Date: 22-05-2022**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads and Drains at Vyshnavi Layout in Ward No. 11(Kuvempunagara), Vidyaranyapura Sub Division.

Agency : Sri.K Shankar Reddy, No:18, K- No 370,414,413,188, Bhuvaneshwarinagara, Bangalore-560024

Customer Reference : BBMP/EE/BTP/WO/19/2022-23

Source of Sample : Hot Mix Plant, Bangalore

Sample Condition : Satisfactory

Date of Receipt : 19-05-2022

Type of Mix : BC (Bituminous Concrete)

Date of Test : 19-05-2022

The results of the tests conducted on the Bituminous Concrete mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.16	11.15	10KN(min)
2	Marshal flow at 60°C, mm	3.54	3.55	2-4
3	Percent air Voids	4.86	4.84	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.29	14.25	13-15
5	Percent Voids filled with Bitumen(VFB %)	72.56	73.45	65-75
6	Density, g/cc	2.24	2.25	–

* The results obtained are satisfactory as per standard requirements.

Note:-

The results pertain to the samples received and tested.
All information Furnished by Customer/ Representative
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ASSISTANT EXECUTIVE ENGINEER
Vidyaranyapura Sub-Division
Bruhath Bengaluru Mahanagara Palike

CIVIL Pro Sig..... Date..... BANGALORE

FOR CIVIL Pro.
R.KARTHIK RECHAN
Authorized Signatory
Quality Manager

End of Report